

WHAT IS CLAIMED IS:

1. A hose coupling assembly for connecting a hose having a corrugated portion to an external passage, the hose coupling assembly comprising:

a fitting member including (i) a passage portion having a receiving
5 passage, and (ii) a first engagement catch projecting outwardly from an open peripheral end of the passage portion; and

a socket having (i) an elastically diametrically-expandable socket body for covering both of the fitting member and the corrugated portion, (ii) a second engagement catch, formed on the socket body, for engaging the first engagement
10 catch, and (iii) a socket fitting portion, formed on an opening of the socket body, for mating with the corrugated portion;

wherein the socket is formed such that the connecting of the hose with the external passage with a tight seal is achieved by pressing the socket attached to the corrugated portion toward the fitting member to engage the second engagement
15 catch with the first engagement catch, and the disengaging of the second engagement catch from the first engagement catch is achieved by expanding a diameter of the socket body.

2. The hose coupling assembly according to claim 1, wherein the socket body
20 has a slit across the entirety of a length of the socket to provide C-shaped cross section.

3. The hose coupling assembly according to claim 1, wherein the socket body has a plurality of arcuate bodies and deformable interlinking arches for connecting
25 the arcuate bodies.

4. The hose coupling assembly according to claims 3, wherein the fitting member comprises a stopper for limiting rotation of the socket body relative to the fitting member.

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5. The hose coupling assembly according to claims 1, wherein the fitting member comprises a stopper for limiting rotation of the socket body relative to the fitting member.

10 6. The hose coupling assembly according to claim 4, wherein the fitting member comprises a riser for causing the socket body to expand due to rotation of the socket.

15 7. The hose coupling assembly according to claims 1, wherein the socket comprises a push operation portion for applying force to a rim of the socket body to expand a diameter of the socket body due to the force.

20 8. The hose coupling assembly according to claim 1, wherein the fitting member comprises a diametrical expansion projection for causing the socket body to expand due to rotation of the socket body relative to the fitting member.

9. The hose coupling assembly according to claim 8, wherein the socket body comprises a guide for guiding the diametrical expansion projection.

25 10. The hose coupling assembly according to claims 2, wherein the fitting

member comprises a stopper for limiting rotation of the socket body relative to the fitting member.

11. The hose coupling assembly according to claim 10, wherein the fitting
5 member comprises a riser for causing the socket body to expand due to rotation of the socket.

12. The hose coupling assembly according to claims 2, wherein the socket
comprises a push operation portion for applying force to a rim of the socket body to
10 expand a diameter of the socket body due to the force.

13. The hose coupling assembly according to claim 2, further comprising a
diametrical expansion restricting member for restricting diametrical expansion of
the socket body when attached to the socket body extending over the slit.
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14. The hose coupling assembly according to claim 13, wherein the
diametrical expansion restricting member comprises: an arcuate restricting
member body conforming to a contour of the socket body; and a catch formed on an
inside peripheral wall of the arcuate restricting member body, the catch being
20 constructed and arranged to engage the contour of the socket body when the socket
is pressed into the fitting member in a direction of a hose insertion.

15. The hose coupling assembly according to claim 14, wherein the
diametrical expansion restricting member comprises a push operation projection
25 projecting from an exterior surface of the restricting member body, for applying

force in the direction of the hose insertion.

16. The hose coupling assembly according to claim 15, further comprising a temporary attaching member, the temporary attaching member being constructed
5 and arranged to temporarily attach the socket body to the fitting body when the hose is not attached to the socket.

17. The hose coupling assembly according to claim 16, wherein the temporary attaching member is constructed and arranged to be temporarily
10 attached to the socket at midpoint in process of the hose insertion.

18. The hose coupling assembly according to claim 13, wherein the diametrical expansion restricting member comprises a restricting member body having an arcuate face conforming to an exterior face of the socket body and an
15 engaging pin projecting from the arcuate face, for engaging the socket body.

19. The hose coupling assembly according to claim 9, wherein the diametrical expansion restricting member straddles the slit and made from a wire bent so as to engage the socket body.

20. A hose coupling assembly for connecting a hose having a corrugated portion to an external passage, the hose coupling assembly comprising:

a fitting member including (i) a tubular portion having a receiving passage and substantially a same outer diameter as the hose, and (ii) a first engagement
25 catch formed on an open end of the tubular portion; and

a socket including (i) an annular socket body having a slit across the entirety of the length of the socket, the socket body having a maximum outer diameter which is substantially same outside diameter as an outer diameter of the tubular portion, (ii) a linking portion for linking the socket body over the split, the linking portion being expandable and contractable; (iii) a second engagement catch for engaging the first engagement catch, formed on the socket body; and (iv) a socket fitting portion for mating with the corrugated portion, situated on an opening of the socket body;

wherein the socket is formed such that the connecting of the hose with the external passage with a tight seal is achieved by deforming the linking portion due to shifting of a circumferential position of the socket and engaging the second engagement catch with the first engagement catch .

21. The hose coupling assembly according to claim 20, wherein the first engagement catch has a mating slot formed at an open end of the tubular portion, and the second engagement catch has an engagement claw that mates in the mating slot.

22. The hose coupling assembly according to claim 20, wherein the socket comprises a guide extending from a first end of the socket body, the guide being constructed and arranged to overlap a second end of the socket body, and to guide deforming of the linking portion to maintain substantially diameter of the socket body.

23. The hose coupling assembly according to claim 20, wherein the linking

portion has a first and a second linking band, and the socket is constructed and arranged to maintain substantially an outer diameter of the socket body by expanding of the first linking bands expanding and contracting of the second linking band.

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24. The hose coupling assembly according to claim 21, wherein the socket is constructed such that the second engagement catch engages the mating slot when the second engagement catch is forced into the mating slot while the linking portions are deformed.

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25. The hose coupling assembly according to claims 24, wherein the mating slots comprise guide slots situated at an interval around a circumference of the socket, and a detent slot extending from a bottom of the guide slot to both circumferential directions.

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26. The hose coupling assembly according to claim 21, wherein the mating slots comprise guide slots situated at an interval around a circumference of the socket, and a detent slot extending from a bottom of the guide slot to both circumferential directions.